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Sexuality, Contraception and Pregnancy in a High-School Population

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Students in a middle-class and in an economically lower-class high school were surveyed regarding their attitudes and behavior with respect to sexuality, contraception, and pregnancy. A large majority of students approved of premarital intercourse for both sexes within the context of a loving relationship. The most important deterrent to sexual intercourse was fear of pregnancy. A majority of both sexes had had sexual intercourse. Forty percent of the sexually active had used no contraception on some occasions, and many of the remainder had used poor methods such as withdrawal or rhythm. The pregnancy rate was high—at least 20 percent in several of the sexually active subgroups.

Parents were an infrequent source of information about sex. On the other hand, there was some evidence that students exposed to a sex education program retained useful information if it was relevant to their situation, and if they were appropriately motivated.

A model for integrating the various aspects of this subject area is offered.

THE SEXUAL AND CONTRACEPTIVE BEHAVIOR of adolescents and their modes of coping with an unplanned pregnancy have increasingly become subjects of concern for contemporary physicians and the overall medical care system. This is appropriate because recent investigations have demonstrated that pre-marital heterosexual behavior has more acceptance and has been carried further by more people during the last decade.[1,2] In fact, the most current national survey revealed that almost one out of every two unmarried women have had sexual intercourse by the time they are 19.[2] However, while the incidence of advanced sexuality is at a high level in unmarried adolescence, related precautionary behavior which would guard against undesirable medical and social consequences has not reached a correspondingly high level.

The national survey revealed that 80 percent of the sexually active adolescent girls were not using contraception or were using it inefficiently and that distressingly large proportions of these adolescents were becoming pregnant.[3] Other sources indicate that large proportions of the women seeking therapeutic abortion throughout the nation are unmarried adolescents.[4] Finally, for those pregnant adolescents who do not seek abortion, it is well established that teenage childbearing carries a far greater risk with regard to the health and social consequences.[5]

Physicians can help with these problems by developing their role as an important source of information and guidance for the sexually active teenager as well as for the parents of teenagers and of younger children soon to be teenagers. The majority of sexually active teenage women do not

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know what time during the menstrual cycle they are likely to get pregnant.[3] There is, also, a great need for information about contraceptive side-effects, venereal disease, sexual anatomy and physiology, and the medical and psychological consequences of abortion. The physician can help in providing this information and encouraging the individual or the family to talk through the issues and problems which come up in the context of acquiring this information. For these reasons, it is important for physicians to have knowledge about the current status of community behavior and value patterns with respect to adolescent sexuality, contraception, and pregnancy. To this end, I will present and discuss in the material below the results of a survey of attitudes and practices regarding sexuality, contraception and unplanned pregnancy among a population of suburban high-school students conducted in the Spring of 1971.

Method

A sexual attitude and practice questionnaire was developed and pre-tested with a small teenage population. It was then administered in two San Francisco Bay Area high schools—one predominantly white and middle-class as measured by economic standards, the other racially and ethnically mixed and lower-class. In each school one teacher administered the questionnaire to all of the junior and senior students in seven different classes on one selected day. The classes had been selected previously by each teacher as ones which included students representative of the range of capacities and interests within the school population. In this way a representative, although not a random sample was secured. In all classes students were informed of the survey several weeks ahead of time, were given the opportunity to discuss the purpose and nature of the study, and—as required by California law—were required to secure parental consent for their participation. During questionnaire administration there were five and nine refusals to participate in the study in the middle-class and lower-class schools respectively. During the classroom period, the questionnaire was completed anonymously by each student, who then sealed it in a stamped envelope which had the investigator's medical school address on the front. Following data analysis, results were reported back to the students and discussed through small group meetings with the investigator and the teacher at each school.

Results

Demographic Characteristics. Table 1 presents the demographic characteristics of the sample from each school. While the two subgroups are approximately equivalent as to age, sex, and marital status, they are very different with respect to racial-ethnic status, religion, and social class.

TABLE 1.—*Demographic characteristics of the two study populations. Determination of social class was based on Hollingshead's Two Factor Index of Social Position.*[4]

	Middle-Class School	*Lower-Class School*
Total	180	154
Age		
Mean (years)	17.6	17.6
SD (years)	0.59	0.76
Sex		
Male	97	66
Female	83	88
Marital Status		
Never Married	178	144
Currently Married	2	5
Formerly Married	0	1
Unknown	0	4
Racial-Ethnic Group		
Black	1	20
Chicano	1	65
Oriental	1	5
White	172	51
Other	1	12
Unknown	4	1
Religion		
Jewish	1	2
Protestant	80	52
Roman Catholic	39	70
None	44	20
Other	7	2
Unknown	5	2
Social Class		
Head of Household—Occupation		
Professional—Managerial Worker, Major	41	3
Professional—Managerial Worker, Intermediate	28	5
Professional—Managerial Worker, Minor	40	6
Clerical, Sales, and Technical Workers	25	13
Skilled Manual Workers	27	46
Semi-Skilled Manual Workers	9	38
Unskilled Workers	1	22
Unknown	9	21
Head of Household—Education		
Post-Graduate Degree	30	1
College Graduate	45	12
One Year College+	40	10
Grade 12	38	25
Grades 10 through 12	11	23
Grades 7 through 9	10	36
To Grade 6	2	35
Unknown	4	12

Because of these school differences the presentation of the remaining data will be arranged according to school attended. Further, because of the potential effect of gender on sexual and contraceptive behavior, the data will also be presented according to the sex of the respondent. In order to simplify reading the tables and to facilitate comparison between rows, the remaining tables (with one exception—Table 14) are presented in terms of percentage.*

Sexual Norms. The respondents were asked under what conditions they approved of sexual intercourse for a man and a woman. Table 2 shows the percentage of each sub-group which approved, under five different conditions.

*When no data were available from a given respondent(s) on a particular item of the questionnaire (a situation which occurred with low frequency), percentage figures were calculated by correspondingly decreasing the size of the sample. The N used for calculation is indicated in each table. The maximum size of the N for each of the four sub-groups of the sample is shown in the two rows under sex in Table 1.

TABLE 2.—*The percentage of respondents who agree with the acceptability of sexual intercourse under five different conditions for a man and for a woman. Data arranged by sex and social class.*

	Males		Females	
Acceptability of Sexual Intercourse	*Middle-Class School N=97*	*Lower-Class School N=66*	*Middle-Class School N=83*	*Lower-Class School N=88*
For a Man				
Only when married	12	8	11	17
When engaged*	79	73	67	51
When in love†	71	65	55	48
With good friend*	44	48	20	20
With acquaintance†	27	36	14	14
For a Woman				
Only when married†	16	26	25	42
When engaged*	83	71	66	50
When in love†	69	61	52	42
With good friend*	37	39	14	16
With acquaintance*	20	26	5	9

*Indicates that a chi square analysis of data is significantly different at <.001.

†Indicates that a chi square analysis of data is significantly different at <.01.

TABLE 3.—*The percentage of respondents who approve of unmarried cohabitation, contraception for minors without parental consent, and abortion, arranged by sex and social class.*

	Males		Females	
Respondent Approval	*Middle-Class School N=97*	*Lower-Class School N=66*	*Middle-Class School N=83*	*Lower-Class School N=88*
Unmarried cohabitation*	75	71	54	47
Contraception for minors without parental consent	75	79	69	67
Abortion*	67	35	64	30

*Indicates that a chi square analysis of data is significantly different at <.001.

The respondents also were asked about their attitude toward unmarried men and women living together. The percentage of those approving is shown in the first line of Table 3.

Sexual Knowledge. The respondents were asked what were their most complete and factual sources of information on sexual matters. Their responses are shown in Table 4.

Sexual Opportunities and Deterrents. The respondents in the middle-class high school were asked about the extent to which opportunity or lack of opportunity influenced their sexual behavior (this question was added to the research instrument for this school at the suggestion of the

TABLE 4.—*The percentage of respondents who report parents, friends, school, books and magazines, television and movies, and other sources as their most complete source of sexual information, arranged according to sex and social class.*

	Males		Females	
Sources of Sexual Information	*Middle-Class School N=97*	*Lower-Class School N=66*	*Middle-Class School N=83*	*Lower-Class School N=88*
Parents	11	11	12	13
Friends*	32	59	28	50
School*	42	8	45	16
Books and Magazines†	19	12	24	30
TV and Movies	3	12	7	9
Other	9	20	11	8

*Indicates that a chi square analysis of data is significantly different at <.001.

†Indicates that a chi square analysis of data is significantly different at <.05.

TABLE 5.—*The percentage of respondents from the middle-class school who reported that lack of opportunity had been a factor on some occasion in their not having sexual intercourse.*

	Middle-Class Male N=97	*Middle-Class Female N=83*
No opportunity	17	12

TABLE 6.—*The percentage of respondents who indicated various deterrents which have prevented them from having sexual intercourse on some occasion, arranged according to sex and social class.*

	Males		Females	
Deterrents to Sexual Intercourse	*Middle-Class School N=97*	*Lower-Class School N=66*	*Middle-Class School N=77*	*Lower-Class School N=88*
Felt it was wrong*	13	29	31	56
Feared pregnancy*	36	35	70	42
Feared social disapproval	6	9	17	15
Did not like person†	23	17	36	11
Feared disease	18	20	12	14

*Indicates that a chi square analysis of data is significantly different at <.001.

†Indicates that a chi square analysis of data is significantly different at <.01.

TABLE 7.—*The percentage of respondents who have been sexually active and, of these, the percentage who become pregnant or are aware of causing a pregnancy, arranged according to sex and social class. (N shown as: Total N/Sexually Active N).*

	Males		Females	
	Middle-Class School N= 97/52	Lower-Class School N= 66/42	Middle-Class School N= 83/48	Lower-Class School N= 88/42
Respondents having sexual intercourse	53	64	58	48
Respondents having sexual intercourse who became involved in at least one pregnancy*	2	20†	12.5‡	20

*Indicates that a chi square analysis of data is significantly different at <.05.
†One man reported two pregnancies.
‡Two women reported two pregnancies.

TABLE 8.—*The percentage of sexually active respondents who reported having sexual intercourse once, a few times, several times per month, every week, several times per week, arranged according to sex and social class.*

	Males		Females	
Frequency of Sexual Intercourse	Middle-Class School N=52	Lower-Class School N=42	Middle-Class School N=48	Lower-Class School N=40
Once	8	12	8	18
Few times	46	31	40	40
Several/month	29	36	23	20
Every week	8	21	15	15
Several/week	10	0	15	8

TABLE 9.—*The percentage of sexually active respondents who have had one, two, three or four, five to ten, or more than ten sexual partners, arranged according to sex and social class.*

	Males		Females	
Number of Partners	Middle-Class School N=51	Lower-Class School N=39	Middle-Class School N=48	Lower-Class School N=42
1	49	49	60	62
2	16	13	13	19
3-4	24	26	19	12
5-10	2	5	4	5
>10	10	8	4	2

TABLE 10.—*The percentage of sexually active respondents who enjoy sexual intercourse a great deal, moderately, little, and not at all, arranged according to sex and social class.*

	Males		Females	
Enjoyment of Sexual Intercourse	Middle-Class School N=51	Lower-Class School N=42	Middle-Class School N=47	Lower-Class School N=38
Great deal*	82	81	64	53
Moderately	14	14	28	29
Little	4	0	4	8
Not at all	0	5	4	11

*Indicates that a chi square analysis of data is significantly different at <.01.

school principal). The results are presented in Table 5. The respondents were also asked about five psychological factors which might deter them from having sexual intercourse. Table 6 shows the percentage of each sub-group which reported that one of the five factors was a deterrent on some occasion.

Sexual Behavior. The respondents were asked about their actual sexual behavior. Data on the percentage having sexual intercourse and, for this sexually active sub-group, the frequency of intercourse, the number of partners, and the degree of enjoyment of intercourse are presented in Tables 7, 8, 9, and 10.

The mean age and standard deviation of first sexual intercourse was 16.2 ± 1.4 and 15.8 ± 1.7 for the middle-class and lower-class schools respectively.

Contraceptive Norms. The respondents were asked about their preferences regarding the currently available contraceptive methods. Their responses are recorded in Table 11. They were also asked about their attitude toward the availability of contraception without parental consent. Data regarding this are shown in line 2 of Table 3.

Contraceptive Knowledge. The respondents were asked when the fertile period occurred during the ovulatory cycle. The results are shown in Table 12, where the data are further broken down for females according to the extent of their sexual behavior.

Contraceptive Behavior. The sexually active respondents were asked about actual contraceptive behavior. Differences between sub-groups were relatively minor and therefore the data are not presented in tabular form. The methods used most commonly (that is, by 40 to 60 percent of the

TABLE 11.—*The percentage of respondents who would prefer oral contraception, IUD, condom, rhythm, and all other methods of contraception for themselves, arranged according to sex and social class.*

	Males		Females	
Preferred Contraception	Middle-Class School N=89	Lower-Class School N=47	Middle-Class School N=79	Lower-Class School N=64
Oral contraception*	65	26	65	58
IUD*	1	6	23	13
Condom*	17	19	1	0
Rhythm†	7	19	3	14
Nothing	9	13	3	11
Other*	0	17	5	4

*Indicates that a chi square analysis of data is significantly different at <.001.
†Indicates that a chi square analysis of data is significantly different at <.05.

respondents) in the past were withdrawal, rhythm and condom. About 25 percent of the respondents reported having used oral contraception, and about 40 percent reported using nothing at all on some occasions.

Abortion Norms. The respondents were asked about their attitude toward abortion. The percentage of those approving is presented in the last line of Table 3.

Procreative Norms. All respondents were asked how many children they desired to have. These data are presented in Table 13.

Procreational Outcomes. The sexually active respondents were asked whether they had ever become pregnant or caused a pregnancy. For those involved in a pregnancy, the outcome of that pregnancy was determined. These data are shown in Tables 7 and 14.

Discussion

The results of this survey provide information about how a sample of California suburban high-school students think, feel and behave with respect to sexuality, contraception and procreation. They also characterized the differences which exist within the sample when it is subdivided according to sex and social class. In this section I will discuss these two areas together and then describe a simple model which I believe will be helpful to physicians in integrating the various aspects of this subject area.

The great majority of this sample approve of pre-marital intercourse for both men and women (Table 2). However, this approval becomes weaker as the situation in which intercourse occurs moves from a highly-committed, love relationship to a casual one. Approval also becomes weaker when it is the behavior of women rather than men which is being considered. Analysis within the sample reveals that female respondents, especially lower-class females, are more likely not to approve of pre-marital intercourse than are the men. These results are similar in their basic form to those reported by Reiss from other parts of the country.[7,8] In general they suggest the existence of a peer-group atmosphere which is relatively supportive of pre-marital sexual intercourse between two adolescents who have a loving relationship. Further evidence for a supportive atmosphere comes from the data in this study which show that a clear majority of respondents approve of unmarried cohabitation and the provision of contraception to teenagers without parental consent (Table 3). Interestingly, while there are no significant sub-group differences with respect to the provision of contraception, female respondents are significantly less likely to approve of unmarried cohabitation. This probably reflects, among other things, the traditional reluctance of women to proceed too far in an intimate relationship out-

TABLE 12.—*The percentage of respondents who correctly answered when the fertile period occurred during the menstrual cycle, arranged according to sex and social class and, for females, according to whether or not they have had sexual intercourse.*

	Males		Females	
	Middle-Class School N=97	Lower-Class School N=66	Middle-Class School N=83	Lower-Class School N=88
Knowledge of fertile period*	38	29	63	34
Sexually active	..	..	77	36
Not sexually active	..	..	43	33

Middle-Class Sexually Active/Non-sexually Active Females N= 48/35.
Lower-Class Sexually Active/Non-sexually Active Females N= 42/46.

*Indicates that a chi square analysis of data is significantly different at <.001.

TABLE 13.—*The percentage of respondents who indicated a desire for zero through six or more children, arranged according to sex and social class*

	Males		Females	
Number of Children Desired	Middle-Class School N=88	Lower-Class School N=66	Middle-Class School N=83	Lower-Class School N=86
0	11	15	5	12
1	5	6	10	2
2*	64	47	58	45
3	15	11	18	12
4†	1	11	7	17
5	2	5	1	3
6*	2	6	1	8
Mean number of children desired	2.06	2.33	2.23	2.64

*Indicates that a chi square analysis of data is significantly different at <.05.
†Indicates that a chi square analysis of data is significantly different at <.01.

TABLE 14.—*Frequency of pregnancy outcomes, arranged according to sex and social class.*

	Males		Females	
Pregnancy Outcomes	Middle-Class School	Lower-Class School	Middle-Class School	Lower-Class School
Already married	0	0	0	0
Got married	0	3	0	0
Gave baby for adoption	0	0	1	0
Kept baby, unmarried	0	1	0	4
Legal abortion	1	0	5	3
Illegal abortion	0	2	0	0
Miscarriage	0	3	2	1
Total number of pregnancies	1	9	8	8

side of some formal social institution such as marriage.

An examination of the respondent's sources of sexual information indicate that few report their parents as important sources (Table 4). Friends, school, and books and magazines are the most frequently endorsed sources, in that order. Friends are more important for the lower-class adolescents, school for the middle-class group. This finding may be quite significant in that, in this particular sample, the lower-class school had no sex education program while the middle-class school had a comprehensive program, one which was well received and popular among the students.

When this investigation was initiated there were some at the middle-class school who believed that lack of opportunity was an important reason that adolescents do not become sexually active. A question on this issue was added to the questionnaire. The results (Table 5) indicate that only a few students report being deterred from sexual activity by lack of opportunity, and even in those few it was only "on some occasions."

Five psychological deterrents to intercourse were important for the respondents (Table 6) and in three there was considerable sub-group variation. Lower-class women were more likely than others to report being deterred because they felt that sexual intercourse was wrong. Middle-class women were more likely than other sub-groups to be deterred by fear of pregnancy and by not liking the other person. Over all, the most important deterrent was the fear of pregnancy, strengthening the view that practical considerations were more important than moral considerations in this sample's sexual behavior.

All these positive and negative factors—the opportunities, the deterrents, the social norms—combine with various sexual and non-sexual motives to produce some level of sexual activity in each respondent. In this sample, the majority of respondents have had sexual intercourse (Table 7). However, the level of activity was relatively low or new, or both, because about half of those already sexually active report having intercourse only "once" or "a few times" (Table 8) and about the same proportion reported having only one partner (Table 9). These findings are quite similar to those in a comparable national sample.[3]

Within sample, analysis revealed that there were no sex or social class differences with respect to how many respondents were sexually active, the frequency of intercourse, or the number of sexual partners. When this is considered together with the significant sub-sample differences in attitude toward pre-marital intercourse, it appears that women, especially those in the lower-class, are more likely to be sexually active while disapproving of it, and thus have conflict about their sexual activity. Such a conflict may play a part in the fact that while sexual activity was generally a source of considerable enjoyment for the whole sample, there was some tendency for the women respondents to report moderate as opposed to a great enjoyment (Table 10). Whether this apparent conflict also leads to ineffective contraception and unplanned conceptions cannot be decided from so small a sample. However, such an hypothesis finds support in other reports[9,10] and is consistent with the remainder of the findings, discussed below.

Most of the sexually active respondents had used either no contraception or a poor method (such as withdrawal or rhythm) on some occasion in the past. This corresponds well with current national findings.[3] On the other hand, the data on preferred contraception show that oral contraception was the most desired method. They also show considerable within-sample differences, with the intra-uterine device (IUD) favored by women, the condom by men and rhythm by the lower-class sub-samples. (This latter finding may well be the result of the religious differences which coincide with the social class differences in this sample. See Table 1). Lower-class males seem to have special contraceptive preferences with less orientation toward oral contraception and more toward other, less effective methods (mostly withdrawal and foam).

Only about one-third of the respondents knew correctly when the fertile period occurred during the menstrual cycle, with the exception of the middle-class women (Table 12). Within this sub-group, it actually was only the sexually active who were significantly more informed, three-fourths of them being correct in their estimation of the fertile period. This perhaps reflects the result of some interaction between the sex education program in the middle-class school and the needs created in the female respondents by their own sexual activity. It is interesting to note that the data in Table 12 parallel closely the data on fear of pregnancy seen in line 2 of Table 6, suggesting that among the sexually active, this fear provides one of the motivational links be-

tween exposure to sexual and contraception information and the acquisition of knowledge.

The entire group of respondents desired an average of 2.3 children (Table 13), with middle-class men having the lowest mean and lower-class women the highest. There was some tendency for more of the middle-class respondents to desire two children and for more of the lower-class respondents to desire four.

Among the respondents who are sexually active, unplanned pregnancy occurred with a frequency as high as 20 percent in two of the sub-samples (Table 7). Although the middle-class men reported significantly fewer pregnancies, it is quite likely that this difference results from their not being informed by the girl when a pregnancy has occurred. This conclusion is supported by the data on pregnancy outcomes in Table 14 which show that virtually all the pregnancies in the middle-class women had an outcome which could be concealed from the male. In contrast, a number of lower-class pregnancies went to term.

With respect to abortion, approval is significantly divided along social class lines, with the lower-class groups showing much less approval (again, this finding may be based primarily on religious differences).

While the numbers in Table 14 are far too small to extrapolate safely to a larger population, the fact that three pregnancies reported by lower-class men led to marriage does suggest that there may have been a number of lower-class women who married as a result of a pregnancy and dropped out of high school (and, thus, out of this sample). This possibility together with the lower pregnancy rate reported by middle-class men and the significant sub-sample differences in abortion norms support the general conclusion that ways of coping with unplanned pregnancy vary considerably by sex and social class and that the pregnancy rates in this sample—certainly for the middle-class men and quite possibly for the lower-class respondents in general—represent low estimates.

A useful model for integrating this subject area is depicted in Chart 1. The basic concept is that of the probablistic relationship between sexual intercourse and pregnancy, a relationship which can be considerably influenced by contraceptive behaviors. The chart depicts how these three sets of behaviors—namely heterosexual, contraceptive and pregnancy behavior—all inevitably linked by human physiology, are separately affected by a number of different social and psychological factors. In this paper, contemporary data regarding many of these factors have been presented. Where

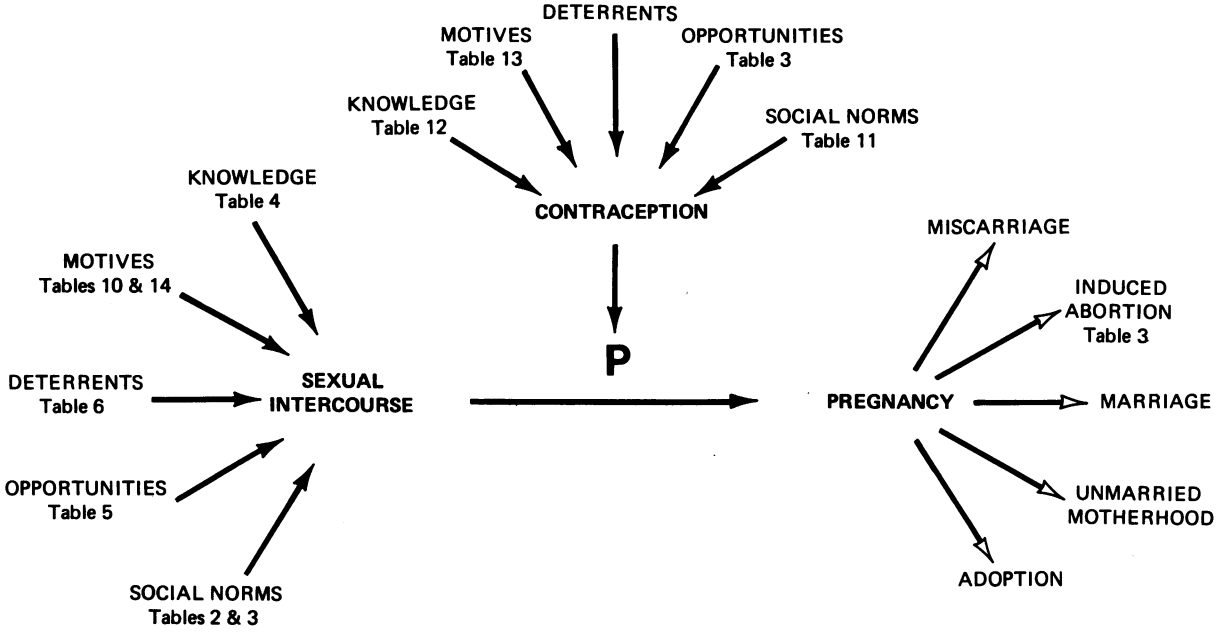

Chart 1.—A diagramatic model of the probabilistic relationship between sexual intercourse and pregnancy, indicating that the latter occurs following sexual intercourse with a certain probability, P. This probability is subject to considerable influence by contraception and contraceptive behavior. The model includes a variety of the psychological and social factors which influence sexual and contraceptive behavior. It also includes the alternate outcomes, largely behavioral, which may follow after a pregnancy.

applicable, this is indicated in the chart by listing the relevant table(s) under the appropriate psychological or social factor.

Each of these three major fields of behavior must be considered by the physician in dealing with the related problems presented to him by his patients. Thus, in a discussion of sexuality, the physician cannot separate out and omit a consideration of the need for contraception or the possibility of pregnancy. In prescribing contraception he must similarly take into account the effect of his action on the patient's future sexual behavior and his or her whole orientation toward pregnancy and childbearing. And in helping the patient to deal with an imagined or real pregnancy he must be able to look back in the process and help the patient to consider the sexual and contraception steps which led up to it initially. For a further discussion of these subject areas, the physician may consult other more detailed sources.[11,12,13]

REFERENCES

1. Cannon KL, Long R: Premarital sexual behavior in the sixties. J Marriage Fam 33:36-49, Feb 1971

2. Zelnik M, Kantner JF: The probability of premarital intercourse. Social Science Research 1:335-341, Sep 1972

3. Zelnik M, Kantner JF: Sexuality, Contraception, and Pregnancy among Young Unwed Females in the United States—Final Report to the Commission on Population Growth and The American Future. Washington, DC, US Government Printing Office, 1972—in press

4. Abortion Surveillance Report, Apr-Jun 1971. Atlanta, Center for Disease Control, 1972

5. Menken J: The health and social consequences of teenage child-bearing. Family Planning Perspectives 4:45-53, July 1972

6. Hollingshead AB: Two Factor Index of Social Class, New Haven, 1957

7. Reiss IL: Premarital sexual standards. *In* Broderick CB, Bernard J (Eds): The Individual, Sex, and Society. Baltimore, Johns Hopkins Press, 1969, pp 109-118

8. Reiss IL: The Social Context of Premarital Sexual Permissiveness. New York, Holt, Rinehart and Winston, 1967

9. Vincent CE: Unmarried Mothers. New York, The Free Press, 1961

10. Miller WB: Psychosocial antecedents of unwanted pregnancy. In preparation

11. Miller WB: Conception mastery: Ego control of the psychological and behavioral antecedents to conception. Comments on Contemporary Psychiatry—in press

12. Katchadourian HA, Lunde DT: Fundamentals of Human Sexuality. New York, Holt, Rinehart and Winston, 1972

13. Pohlman E: The Psychology of Birth Planning. Cambridge, Schenkman Publishing Co, 1969